

ABSTRACT OF THE DISCLOSURE

A photonic channelized receiver includes: an optical source, an optical combiner, an electro-optical modulator, an etalon, a wavelength splitter, and a set of detectors. The optical source produces a set of optical signals at spaced wavelengths, and the optical combiner combines the optical signals into a common beam. The electro-optical modulator modulates the common beam with an RF signal to produce sidebands offset from frequencies of the optical signals by the RF signal frequency. The etalon has a periodic transfer function that filters the modulated common beam such that the signals in the filtered, modulated common beam function as receiver channels corresponding to respective RF frequencies. The wavelength splitter separates the common beam into channel output signals whose intensities are a function of the frequency of the RF signal. The detectors measure the intensities of the channel output signals to determine the frequency of the RF signal.